2/2/24

week 5:

Program 6: Create a package CIE which has 2 classes - Student & Internals. The class Student has members like usn, name, sem. The class internals has an array that stores the internal marks scored in five courses of the current semester of the student. Create another package SEE which has the class External which is a derived class of Student. This class has an array that stores the SEE marks scored in 5 courses of the current semester of the student. Import the two packages in a file that declares the final marks of n students in all 5 courses.

```java
package CIE;

public class Student {

    public String usn, name;
    public int sem;

    public void acceptdetails()
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter name, usn & semester :");
        name = scan.nextLine();
        usn = scan.nextLine();
        sem = scan.nextInt();
    }
}
```

```java
package CIE;

public class Internals
{
    public int imarks[] = new int[5];

    public void acceptint()
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter internals marks : \n");
        for(int i=0; i<5; i++)
            imarks[i] = scan.nextInt();
    }
}
```

```java
package SEE;
import CIE.Student;
public class External extends Student{

    public int smarks [] = new int [5];

    public void acceptext()
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter external marks : \n");
        for (int i =0; i<5; i++)
            smarks [i] = scan.nextInt();
    }
}


import CIE.*;
import SEE.*;
import java.util.*;
public class StuFinalMarks {

    public static void void main (String args[])
    {   int fmarks [] = new int [5];
        Scanner scan = new Scanner(System.in);
        System.out.println(" Enter number of students : ");
        int n = the scan.nextInt();
        CIE.Student => CIE.Internals s[] = new CIE.Inter
        SEE.External st[] = new External [n];         Internals [
        for (int i =0; i<n; i++)
        {
            st[i] = new External();  SEE. External();
            s[i] = new CIE. Internals();  CIE. Student ();
            System.out.println(" Enter details of student " + (i+1);

            st[i]. acceptdetails();
            st[i]. acceptint();
            st[i] . accept ext();
            for(int j=0 ; j<5 ;j++)
            {
                System.out.println(" Enter internal & external marks
                                    of subject "+ (j+1));
                s[i].imarks [j] = scan.nextInt();
                st [i].smarks [j] = scan.nextInt();
                fmarks [j] = s[i].imarks [j] + st [i].smarks [j];
            }
        }
```

```java
System.out.println ("Final marks of " + st[i].name);
for (int k=0; k<5; k++)
{
    System.out.println (" Course " + (k+1) + " = " + fmarks[k]);
}
}
}
```

output :-

```
Enter number of students: 1
Enter details of student 1:
Enter USN, name & sem:
123
ABC
3
Enter internal & external marks of subject 1
48
49
Enter internal & external marks of subject 2
48
50
Enter internal & external marks of subject 3
48
48
Enter internal & external marks of subject 4
49
49
Enter internal & external marks of subject 5.
50
50
Final marks of ABC:
Course 1 = 97
Course 2 = 98
Course 3 = 96
Course 4 = 98
Course 5 = 100
```

2/2/24

Algorithm :-

Step 1: Create package CIE, SEE

Step 2: Create class Student within CIE

Step 3: Create class Internals within IE

Step 4: Create class External within SEE which extends CIE.Student

Step 5: Create method accept() which reads usns name and sem.

Step 6: for $i = 0$ to $n-1$ do

    call accept() for student i

    for $j = 0$ to 4 do

        input imarks[j] for subject j of student i

        input smarks[j] for subject j of student i

        fmarks = imarks[j] + smarks[j]

    endfor

    output, "Final marks of student ", i

    for $k = 0$ to 4 do

        output, "Course ", (k+1), " = ", fmarks[k]

    endfor

endfor

Step 7: Stop

```
C:\Users\BMSCE\Desktop\014\Package1>javac -d .  Student.java

C:\Users\BMSCE\Desktop\014\Package1>javac -d .  Internals.java

C:\Users\BMSCE\Desktop\014\Package1>javac -d .  External.java
```

```
C:\Users\BMSCE\Desktop\014\Package1>javac FinalMarks.java

C:\Users\BMSCE\Desktop\014\Package1>java FinalMarks
Enter number of students:
2
Enter details of student: 1
Enter USN, name and sem:
123
ABC
3
Enter internal and external marks of subject 1
48
49
Enter internal and external marks of subject 2
48
50
Enter internal and external marks of subject 3
48
48
Enter internal and external marks of subject 4
49
49
Enter internal and external marks of subject 5
50
50
Final marks of ABC
Course 1= 97
Course 2= 98
Course 3= 96
Course 4= 98
Course 5= 100
Enter details of student: 2
Enter USN, name and sem:
124
DEF
3
Enter internal and external marks of subject 1
48
48
Enter internal and external marks of subject 2
49
50
Enter internal and external marks of subject 3
50
50
Enter internal and external marks of subject 4
59
50
Enter internal and external marks of subject 5
48
49
Final marks of DEF
Course 1= 96
Course 2= 99
Course 3= 100
Course 4= 109
Course 5= 97
Name: Aditi. C    USN:1BM22CS014
```